

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE February 1999		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development						

COST (In Thousands)	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14845	6707	4099	19832	19712	18443	35898	44243	Continuing	Continuing
D005 Landmine Advanced Development	685	3920	4099	12840	11466	9000	30121	37572	Continuing	Continuing
D606 Countermine/Barrier Advanced Development	14160	2787	0	6992	8246	9443	5777	6671	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program element provides for advanced development of new mine and countermine systems by prototyping modern munitions technology, advanced development sensors, logic networks, fuzes, power sources, warhead components and modules into complete systems. It provides for advanced development of the Intelligent Combat Outpost (Raptor) which will significantly enhance minefield effectiveness through coordinated attack/tactics and elimination of overwatch forces. It also provides for the initiation and/or continuation of advanced development of the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS) and for mine neutralization with the Explosive Stand-off Minefield Clearer (ESMC) , Mine Hunter/Killer (MHK), and Anti-personnel Obstacle Breaching System (APOBS).

B. <u>Program Change Summary</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Previous President's Budget (<u>FY 1999</u> PB)	24299	6778	3877	6546
Appropriated Value	18882	6778		
Adjustments to Appropriated Value				
a. Congressional General Reductions	-583	-71		
b. SBIR/STTR	-459			
c. Omnibus or Other Above Threshold Reduction	-151			
d. Below threshold reprogramming	-2844			
Adjustments to Budget Years Since <u>FY 1999</u> PB			+222	+13286
Current Budget Submit (<u>FY 2000 / 2001</u> PB)	14845	6707	4099	19832

Change Summary Explanation:

Funding: In FY98 \$2.8M reprogrammed to project D088 (WAM) in PE 064619A.
In FY01 \$13.3M transferred from Raptor EMD (D016) in PE 064808A to continue PDRR phase.

Schedule: Raptor program restructured, PDRR phase completion extended from 4Q00 to 4Q02

UNCLASSIFIED

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BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development				PROJECT D005		
COST <i>(In Thousands)</i>	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D005 Landmine Advanced Development	685	3920	4099	12840	11466	9000	30121	37572	Continuing	Continuing

A. Mission Description and Justification: Intelligent Combat Outpost (Raptor) will improve the capability of smart mines/munitions used by the United States Army and will enhance the effectiveness of current and future mines/munitions by providing real time targeting data, increased situational awareness, and coordinated attack capabilities while eliminating the need for overwatch forces.

FY 1998 Accomplishments:

- 435 Updated and improved Raptor simulator
- 150 Conducted Analysis of alternatives to resolve systems and operational concept questions
- 100 Participated in the Maneuver Control System IOT&E

Total 685

FY 1999 Planned Program:

- 1100 Conduct Raptor interoperability study, trade off analysis and system integration analysis
- 1416 Conduct MSII and initiate design and development of Raptor
- 500 Initiate Raptor software algorithm development
- 800 Continue Raptor Simulation development and participate in Army Simulation Experiments
- 104 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 3920

FY 2000 Planned Program:

- 1091 Continue Raptor design and development of gateway, sensor, and control station
- 1062 Continue Raptor software algorithm development
- 825 Fabricate Raptor components (5 sets) for test and Evaluation
- 500 Conduct Raptor gateway, sensor, and control station testing
- 621 Perform Raptor system integration and analysis

Total 4099

Project D005
Page 2 of 9 Pages
Exhibit R-2A (PE 0603619A)

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BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development				PROJECT D005			
FY 2001 Planned Program: <ul style="list-style-type: none"> • 5400 Continue Raptor design development • 4000 Fabricate Raptor test hardware (25 systems) • 2100 Conduct Raptor Engineering Development test • 529 Conduct Raptor engineering user test and evaluation • 811 Continue Raptor modeling and simulation efforts <p>Total 12840</p>											
B. Other Program Funding Summary		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	To <u>Compl</u>	Total <u>Cost</u>
RDTE, A Budget Activity 5											
PE 0604808, Project D016, Mine Systems Engineering Development			25829	18363	12615	9007	22098	19357	9613	Cont	Cont
C. Acquisition Strategy: For Raptor, a Sole Source PDRR contract will be awarded to Textron Defense Systems (Wide Area Munition developer). Decision to continue sole source into EMD phase or initiate a competitive solicitation will be evaluated based on PDRR phase results.											
D. Schedule Profile		<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>
Raptor MS I				3Q							
Complete Eng. Dev. testing						3Q					
Complete Engineering user tests						3Q					
Milestone II							4Q				
Complete IOT&E									4Q		
Milestone III										4Q	
<div style="display: flex; justify-content: space-between;"> Project D005 Page 3 of 9 Pages Exhibit R-2A (PE 0603619A) </div>											

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ARMY RDT&E COST ANALYSIS (R-3)										DATE September 1998		
BUDGET ACTIVITY 4 - Demonstration and Validation					PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development					PROJECT D005		

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
Raptor PDRR	CPIF	TBD	0	1736	TBD	1499	Oct 99	8100	Oct 00	8500	19835	
Subtotal Product Development:				1736		1499		8100		8500	19835	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
Eng. support (Raptor)		ARDEC	541	1100	Oct 98	1150	Oct 99	1300	Oct 00	1500	5591	
Raptor analysis/eng. support		Various, TBD	0	730	Oct 98	750	Oct 99	800	Oct 00	648	2928	
Subtotal Support Costs:			541	1830		1900		2100		2148	8519	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
Test support (RAPTOR)		TECOM	0	100	Dec 98	500	Feb 00	2440	Feb 01	800	3840	
Subtotal Test and Evaluation:				100		500		2440		800	3840	

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
Program management		PM-MCD	144	150	Oct 98	200	Oct 99	200	Oct 00	200	894	
SBIR/STTR				104							104	
Subtotal Management Services:			144	254		200		200		200	998	

Project Total Cost:			685	3920		4099		12840		11648	33192	
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Project D005
Page 4 of 9 Pages
Exhibit R-3 (PE 0603619A)

		DATE September 1998
BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development	

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE September 1998		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development				PROJECT D606		
COST <i>(In Thousands)</i>	FY1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY2004 Estimate	FY2005 Estimate	Cost to Complete	Total Cost
D606 Countermine/Barrier Advanced Development	14160	2787	0	6992	8246	9443	5777	6671	Continuing	Continuing

A. Mission Description and Justification: This project provides for advanced development of new countermine systems by prototyping advanced sensors for evaluation of neutralizing, clearing, breaching and detection concepts which will enhance the U.S. capability in countermine warfare. The program includes the Airborne Stand-off Minefield Detection System (ASTAMIDS), the Handheld Stand-off Minefield Detection System (HSTAMIDS), Ground Stand-off Minefield Detection System (GSTAMIDS), Explosive Stand-off Minefield Clearer (ESMC), Mine Hunter/Killer (MHK), and Anti-personnel Obstacle Breaching System (APOBS). The program provides for proof-of-principle for these systems.

FY 1998 Accomplishments:

- 1200 Fabricated ESMC hardware and conduct Government/Contractor testing
- 1000 Conducted Source Selection Board and evaluated GSTAMIDS
- 3507 Fabricated two GSTAMIDS Prototype systems
- 1032 Prepared GSTAMIDS MS II documentation and EMD contract solicitation
- 5223 Completed HSTAMIDS PDRR design and contractor testing
- 1393 Conducted HSTAMIDS DT/EUT&E
- 805 Prepared HSTAMIDS MSII Documentation and EMD Contract solicitation

Total 14160

FY 1999 Planned Program:

- 570 GSTAMIDS hardware/software growth studies
- 200 Analyze HSTAMIDS DT/EUTE test results
- 517 Conduct studies on HSTAMIDS hardware/software improvements
- 1426 Correct HSTAMIDS performance shortfalls
- 74 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs

Total 2787

FY 2000 Planned Program: Project not funded in FY 2000

Project D606 Page 5 of 9 Pages Exhibit R-2A (PE 0603619A)

UNCLASSIFIED

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)								DATE September 1998		
BUDGET ACTIVITY 4 - Demonstration and Validation				PE NUMBER AND TITLE 0603619A Landmine Warfare and Barrier - Advanced Development				PROJECT D606		
FY 2001 Planned Program: <ul style="list-style-type: none"> • 800 Conduct Mine Hunter/Killer Source Selection • 1100 Conduct Mine Hunter/Killer trade off analysis and system integration analysis • 3692 Initiate PDRR design for Mine Hunter/Killer • 1400 Initiate fabrication of two Mine Hunter/Killer test prototypes Total 6992										
B. <u>Other Program Funding Summary</u>	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	To Compl	Total Cost
RDTE, A Budget Activity 5										
PE 0604808A, Project D415, Mine Neutralization/ Detection	4040	26851	22553	26572	28794	20822	11848	11830	Cont	Cont
OPA 3, A Appropriation										
E72800, APOBS			5668	6580						12430
R68200, HSTAMIDS				9992	13000	13125	6883	6930		
R68100, GSTAMIDS					10285	16099	16663	19720		
M80100, IVMMD	12113	3765								
S11500, ASTAMIDS						6100				
C. <u>Acquisition Strategy:</u> : ASTAMIDS, and HSTAMIDS - competing contractors (2 for each project) competitively selected for PDRR phase which will lead to a down select for the EMD phase. GSTAMIDS will leverage the Vehicle Mounted Mine Detector ATD effort with two competitively selected contractors for a total of five competing contractors in PDRR. One contractor will continue into EMD. Successful EMD contractors will be awarded initial production contract (sole source) with multiple option year buys. ESMC competitively selected PDRR phase contractor will be awarded a sole source EMD contract upon completion of PDRR phase and MDA approval. Sole source Production contract with multiple options is anticipated for successful EMD contractor.										
<div style="display: flex; justify-content: space-between;"> Project D606 Page 6 of 9 Pages Exhibit R-2A (PE 0603619A) </div>										

UNCLASSIFIED

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D. Schedule Profile	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2004	FY 2005
MS II for ESMC		2Q*								
MS II for GSTAMIDS			1Q*							
GSTAMIDS Block I MS III					4Q					
GSTAMIDS Block II MS III							4Q			
HSTAMIDS MS II					1Q					
HSTAMIDS MS III							4Q			

*Indicates a completed effort

Project D606
Page 7 of 9 Pages
Exhibit R-2A (PE 0603619A)

UNCLASSIFIED

ARMY RDT&E COST ANALYSIS (R-3)

DATE
September 1998

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

**0603619A Landmine Warfare and Barrier -
Advanced Development**

PROJECT

D606

I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
GSTAMIDS PDRR	CPIF	Coleman Research	764	124	Oct98	0		0		0	888	
GSTAMIDS PDRR	CPIF	Computer Devices of Canada	891	54	Oct 98	0		0		0	945	
GSTAMIDS PDRR	CPIF	GDE	0	138	Nov 98						138	
HSTAMIDS PDRR	CPIF	Coleman Research	4441	365	Nov 98						4806	
HSTAMIDS PDRR	CPIF	GDE	7895	292	Nov 98						8187	
HSTAMIDS PDRR	CPIF	Various	0	1140							1140	
MHK PDRR	CPIF	TBD	0	0		0		6192	Dec 00	Cont	6192	
Subtotal Product Development:			13991	2113				6192			22296	

II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
GSTAMIDS Eng. Support		NVESD/CECOM	760	100	Oct 98	0		0		0	860	
GSTAMIDS Eng. Support		OGA(Misc)	540								540	
HSTAMIDS Eng. Support		NVESD/CECOM	2618	100							2718	
HSTAMIDS Eng. Support		OGA (Misc)	79								79	
MHK Eng. Support		NVESD/CECOM	0	0		0		600	Dec 00	Cont	600	
Subtotal Support Costs:			3997	200				600			4797	

III. Test and Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
.GSTAMIDS Test support		TECOM	1406	0		0		0		0	1406	
HSTAMIDS Test Support		TECOM	973	200							1173	
Subtotal Test and Evaluation:			2379	200							2579	

Project D606

Page 8 of 9 Pages

Exhibit R-3 (PE 0603619A)

UNCLASSIFIED

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DATE

September 1998

BUDGET ACTIVITY

4 - Demonstration and Validation

PE NUMBER AND TITLE

0603619A Landmine Warfare and Barrier -
Advanced Development

PROJECT

D606

IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	<u>FY 1999</u> Cost	<u>FY 1999</u> Award Date	<u>FY 2000</u> Cost	<u>FY 2000</u> Award Date	<u>FY 2001</u> Cost	<u>FY 2001</u> Award Date	Cost To Complete	Total Cost	Target Value of Contract
Prog Mgmt GSTAMIDS		PM-MCD	250	100	Oct 98	0		0		0	350	
Prog Mgmt GSTAMIDS	CPIF	Various	662	0		0		0		0	662	
Prog Mgmt HSTAMIDS		PM-MCD	365	100							465	
Prog Mgmt HSTAMIDS	CPIF	Various	706								706	
Prog Mgmt MHK		PM-MCD	0	0		0		200	Oct 00	Cont	200	
SBIR/STTR				74							74	
Subtotal Management Services:			1983	274				200			2457	

Project Total Cost:			22350	2787				6992			32129	
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Project D606

Page 9 of 9 Pages

Exhibit R-3 (PE 0603619A)

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